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## PATENT ABSTRACTS OF JAPAN

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(54) **LED ARRAY CHIP AND ITS MANUFACTURE, AND DICING DEVICE**

## (57) Abstract:

**PROBLEM TO BE SOLVED:** To deal with higher density of an emitting part by preventing deterioration of the emitting part at a chip-end.

**SOLUTION:** A separation groove 7 whose sidewall makes an acute angle of  $\theta$  with the surface of an n-type matrix 1 is formed on an isolation area of the surface of the n-type matrix 1 by etching, and a p-type diffusion region (emitting part) 5, etc., is formed on an LED array formation region. Then the n-type matrix 1 is diced from the rear surface thereof in the vertical direction so as to reach the bottom surface 7b of the separation groove 7, and further in the horizontal direction along the isolation groove 7, for dividing an LED array into individual chips. So that a side surface 12 of an LED array chip consists of an etched surface (notch surface) 12a making an acute angle with the front surface of the chip and a cut flat surface 12b making almost a right angle with the rear surface of the chip. Viewed from the front surface side of the

chip, the outer shape of the chip is made of the front surface of the chip and an end side 12d of the etched surface 12a.

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